CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/KVSR/W.No.10/WMM/Gradation/2017-18 14.07.2017

TEST REPORT ON GRADATION OF WET MIX MACADAM

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. K.V. Subba Reddy,** Contractor, Bangalore.
* Name of Work	:	Filling of pot holes in Ward No.10 (Doddabommasandra),Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/93/2017-18 Dated: 12.07.2017
Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS 2386 (part-1)1963 (RA-2016)
Date of Testing	:	14.07.2017

Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits As per Morth Table 400-11
53	0	0	0	100	100
45	155	155	3.1	96.9	95-100
22.4	1590	1745	34.90	65.10	60-80
11.2	1015	2760	55.20	44.80	40-60
4.75	555	3315	66.30	33.70	25-40
2.36	480	3795	75.90	24.10	15-30
0.600	510	4305	86.10	13.90	8-22
0.075	565	4870	97.40	2.60	0-8

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/KVSR/W.No.10/WMM/Gradation/2017-18 27.07.2017

TEST REPORT ON GRADATION OF WET MIX MACADAM

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. K.V. Subba Reddy,** Contractor, Bangalore.
* Name of Work	:	Filling of pot holes in Ward No.10 (Doddabommasandra),Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/93/2017-18 Dated: 12.07.2017
Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS 2386 (part-1)1963 (RA-2016)
Date of Testing	:	27.07.2017

Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits As per Morth Table 400-1
53	0	0	0	100	100
45	170	170	3.4	96.6	95-100
22.4	1570	1740	34.80	65.20	60-80
11.2	1030	2770	55.40	44.60	40-60
4.75	575	3345	66.90	33.10	25-40
2.36	495	3840	76.80	23.20	15-30
0.600	470	4310	86.20	13.80	8-22
0.075	605	4915	98.30	1.70	0-8

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/KVSR/W.No.10/WMM/AIV/2017-18 14.07.2017

TEST REPORT ON IMPACT VALUE OF AGGREGATE

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. K.V. Subba Reddy,** Contractor, Bangalore.
* Name of Work	:	Filling of pot holes in Ward No.10 (Doddabommasandra),Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/93/2017-18 Dated: 12.07.2017
* Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS: 2386 Part IV
Date of Testing	:	14.07.2017

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	386	391	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	89	93	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	297	298	
4	Aggregate Impact value = percent fines 100* (W2/W1)%	23.06	23.79	23.42

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/KVSR/W.No.10/WMM/Shape.T/2017-18 14.07.2017

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. K.V. Subba Reddy,** Contractor, Bangalore.
* Name of Work	:	Filling of pot holes in Ward No.10 (Doddabommasandra),Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/93/2017-18 Dated: 12.07.2017
* Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS 2386(Part 1) 1963 (RA 2016)
Date of Testing	:	14.07.2017

Sl.No.	Description	Result
1	Flakiness Index	11.91%
2	Elongation Index	13.84%
3	Combined Flakiness & Elongation Index	25.75%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/KVSR/W.No.10/BC/AIV/2017-18 14.08.2017

TEST REPORT ON IMPACT VALUE OF AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. K.V. Subba Reddy,** Contractor, Bangalore.
* Name of Work	:	Filling of pot holes in Ward No.10 (Doddabommasandra),Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/93/2017-18 Dated: 12.07.2017
* Sample ID	:	Hot mix plant, Bangalore.
* Type of Mix	:	Bituminous Concrete
Technical Reference	:	IS: 2386 (Part- 4)-1963 (RA-2011)
Date of Testing	:	14.08.2017

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	374	379	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	76	81	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	298	298	
4	Aggregate Impact value = percent fines 100* (W2/W1) percent	20.32	21.37	**20.85**

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Job No.: CTCE/BBMP/KVSR/W.No.10/BC/Shape.T/2017-18 14.08.2017

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. K.V. Subba Reddy,** Contractor, Bangalore.
* Name of Work	:	Filling of pot holes in Ward No.10 (Doddabommasandra),Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/93/2017-18 Dated: 12.07.2017
* Sample ID	:	Hot mix plant, Bangalore
Technical Reference	:	IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	14.08.2017

Sl.No.	Description	Result
1	Flakiness Index	11.68%
2	Elongation Index	13.72%
3	Combined Flakiness & Elongation Index	25.40%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/KVSR/W.No.10/BC/Stripping/2017-18 14.08.2017

TEST REPORT ON STRIPPING VALUEOF ROAD AGGREGATES (STATIC IMMERSION TEST)

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. K.V. Subba Reddy,** Contractor, Bangalore.
* Name of Work	:	Filling of pot holes in Ward No.10 (Doddabommasandra),Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/93/2017-18 Dated: 12.07.2017
Technical Reference	:	IS: 6241
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	14.08.2017

Type of binder : 80/100
Percentage of binder used : 5.00% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.00 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	2.9	3.07	96.93
2	3.1		
3	3.2		

*Information is furnished by the Customer/Representative.

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/KVSR/W.No.10/BC/Sp_Wa/2017-18 14.08.2017

TEST REEPORT ON SPECIFIC GRAVITY AND WATER ABSORPTION

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. K.V. Subba Reddy,** Contractor, Bangalore.
* Name of Work	:	Filling of pot holes in Ward No.10 (Doddabommasandra),Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/93/2017-18 Dated: 12.07.2017
* Sample ID	:	Hot mix plant, Bangalore
Technical Reference	:	IS : 2386(Part -3)-1963 (RA-2011)
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	14.08.2017

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2010	2011	2012	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1239	1238	1257	
4	Weight of saturated surface dry aggregate in air	W_3 g	2006	2005	2004	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	767	767	747	
6	Weight of oven dried aggregate	W_4 g	1995	1997	1995	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.601	2.604	2.671	2.625
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.639	2.631	2.703	2.658
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.55%	0.40%	0.45%	0.47%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

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Job No: CTCE/BBMP/KVSR/W.No.10/BC/Bitumen/2017-18 14.08.2017

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

As per IS2386 and IRC:SP:11-1984

* Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	**Mr. K.V. Subba Reddy,** Contractor, Bangalore.
* Name of Work	Filling of pot holes in Ward No.10 (Doddabommasandra),Vidyaranyapura Sub Division, BBMP, Bangalore.
SAMPLE I/D	Pot hole filling to roads in Ward No.10
DATE OF TESTING	14.08.2017

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	470	469
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	30	31
7. Bitumen content in %	6.00	6.20
8. Average	**6.10**	

GRADATION AFTER EXTRACTION

TABLE - 1

SIEVE SIZE	Percent Passing, %		JOBMIX
mm	Sample 1	Sample 2	Gradation
19	100.00	100.00	100
13.2	86.23	87.45	79-100
9.5	81.45	80.96	70-88
4.75	65.28	66.35	53-71
2.36	45.17	43.89	42-58
1.18	43.16	44.18	34-48
0.6	30.87	29.82	26-38
0.3	23.46	22.18	18-28
0.15	15.28	16.79	12-20
0.075	7.12	6.80	4-10

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